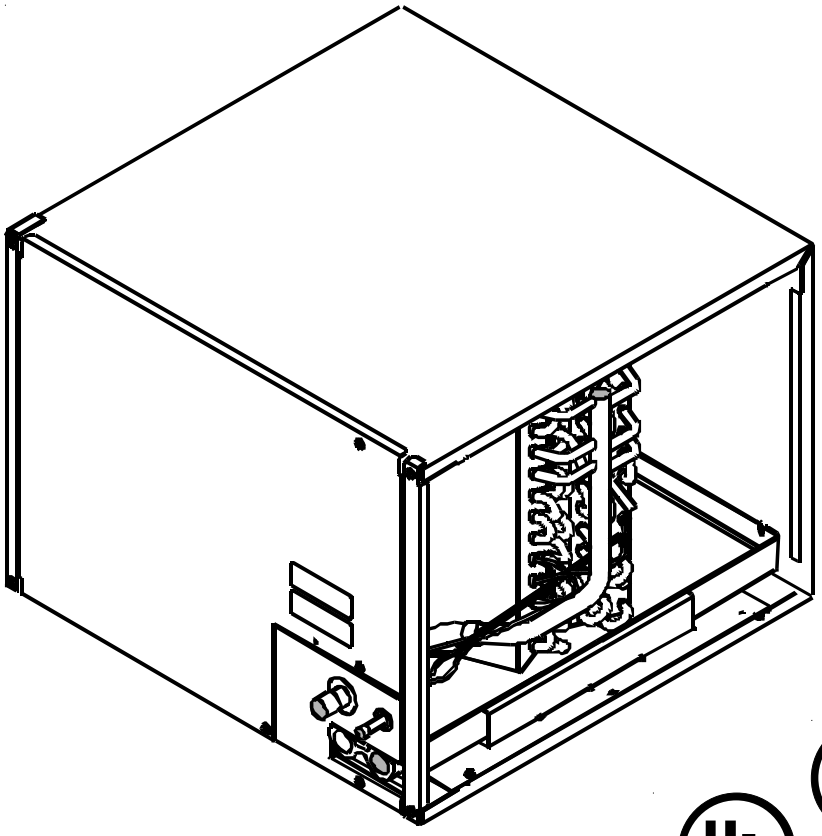
CCF/CHF

Cased Horizontal Evaporator Coil Installation Instructions



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- Units must be installed in accordance with Regulations of the National Fire Protection Association and applicable local codes. Where local regulations are at a variance with instructions, installer should adhere to local codes.
- Before connecting tubing, read the outdoor unit installation manual. Pay particular attention to all safety precautions.

RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

General

Product Application

These horizontal coils can be installed on a furnace or air handling unit. They are specifically designed to “match up” with Amana condensing units and heat pumps to provide high efficiency heating or cooling. These coils are suitable for either attic or crawl space installations. Its bi-directional airflow provides greater flexibility in horizontal left and horizontal right applications. Non-bleed thermal expansion valve kits can be field installed on CCF coils (See “Specification Sheet”). Thermal Expansion Valves (TXV) and flow restrictors give accurate refrigerant control and provide reliable operation over a wide range of conditions. To avoid poor operation or equipment damage, any single-phase reciprocating compressor used with an expansion valve coil must include hard start components. Ensure that the outdoor unit has hard start components or install a hard-start kit. See the outdoor unit “Specification Sheet” for the proper kit number.

NOTE: It may be necessary to change the factory-installed expansion valve on a CHF**TCC coil in order to match the outdoor unit capacity.

CHF**TCC Coil Size	Required TXV Kit	Outdoor Capacity
CHF18TCC CHF24TCC	TXV01A	1 1/2 to 2 tons
CHF30TCC CHF36TCC	TXV02A	2 1/2 to 3 tons
CHF42TCC CHF48TCC CHF60TCC	TXV03A	3 1/2 to 5 tons

For service operating conditions, refer to the “Specification Sheet” from the matching condensing unit.

- Only allow **qualified, experienced** technicians to install or service this unit.

Shipping and Handling

All units are securely packed in shipping containers tested according to International Safe Transit Association specifications. Upon receipt of the coil assembly, inspect for any damage which may have occurred in transit. If damage is obvious, it should be noted on the carrier’s freight bill for inspection and initiation for settlement of claim be made at once. Units are usually shipped F.O.B. factory, and it is the consignee’s responsibility to file damage claims. If no damage is found, shipping material should be removed and properly discarded.

Location Requirements

The coil can be installed with zero clearance to combustible materials. Adequate room must be provided for servicing, routing of refrigerant lines, and routing of drain lines including a drain trap. Do not locate the unit directly on the ground or in an area that may become wet. If installed over a finished ceiling or living space, a secondary drain pan (with drain line) should be positioned under the entire unit.

Installation Instructions

PreInstallation Requirements

Coil Sizing

Coils should be sized prior to installation based on recommended matches to the outdoor unit. Refer to sales literature and the ARI directory. Install unit in accordance with Regulations of the National Fire Protection Association and applicable local codes. Where there are variances with the national code, adhere to local codes.

The capacity of the cooling or heating system is obtained from the published ratings.

NOTES:

- For TXV installation, select the TXV kit specified on the condensing unit specification sheet or sales literature.
- For orifice installation, select the orifice size specified by the outdoor unit.

Coil Cleaning

To obtain optimum performance on initial start-up, the coil assembly must be cleaned with a mild dishwashing detergent or coil cleaner to remove any manufacturing oil residue, dirt, or other foreign substances from the coil finned surfaces.

Installation

The Cased Horizontal Evaporator Coil can be installed either suspended (Figure 1) or directly on a surface (Figure 2). In either installation, ensure the coil bottom is fully supported and resting on rubber isolation pads. These pads will minimize vibration and sound transmission to the structure.

⚠ CAUTION

It is the installer's responsibility to ensure the coil is properly supported.

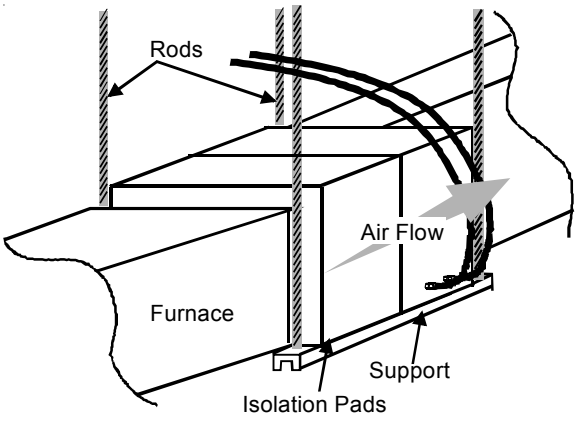

Figure 1

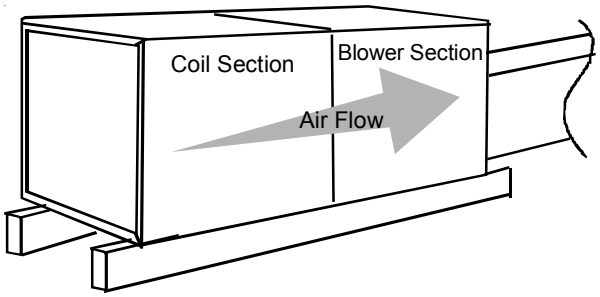

Figure 2

Coil Attachment

Furnace

When attaching the coil to either a gas or oil furnace, mount the coil at the supply air end of the furnace (unless the furnace manufacturer instructs otherwise). Ensure the drain pan is down. For proper drainage, the coil must be level or pitched toward the drain connections. If necessary, shim under the furnace so the furnace and coil casing will both be level or pitched toward the drain.

Horizontal Left Applications

In this application, the opening in the right side of the casing mates with the supply side flanges on Amana Air Command™ furnaces. Ensure the furnace flanges are turned up.

Horizontal Right Applications

In this application, if you wish to create more surface area for attachment of duct work (Figure 3), turn the front panel 180°.

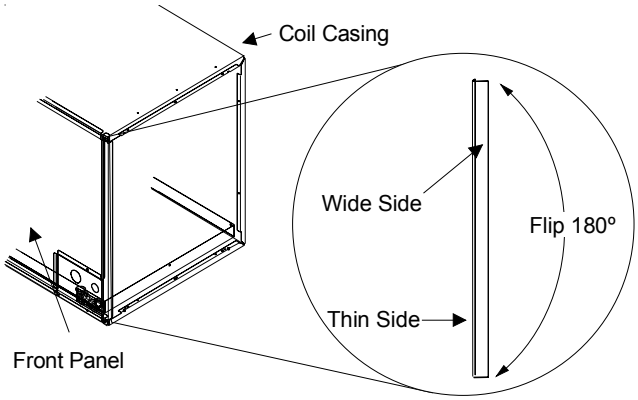

Figure 3

If the furnace and coil are not similar in depth and width, a transition will have to be field-supplied. Center the furnace and coil openings relative to each other. Fasten the assembly securely, and seal as necessary to reduce air leakage. Do not allow screws to penetrate the coil drain pan or tubing.

Duct Flange Attachment

The duct flanges for the return air side are shipped unattached. If necessary, carefully drive the flanges into place using a mallet. In an horizontal left application use three (3) flanges; in an horizontal right application use four (4).

1. Slide the top and side duct flanges onto the casing flange.

   Note: Left side duct flange is not used in horizontal left installations.

2. Remove the screws attaching the pan mount to the coil casing.
3. Lift up the pan mount and slide the bottom duct flange underneath onto the casing flange (Figure 3).

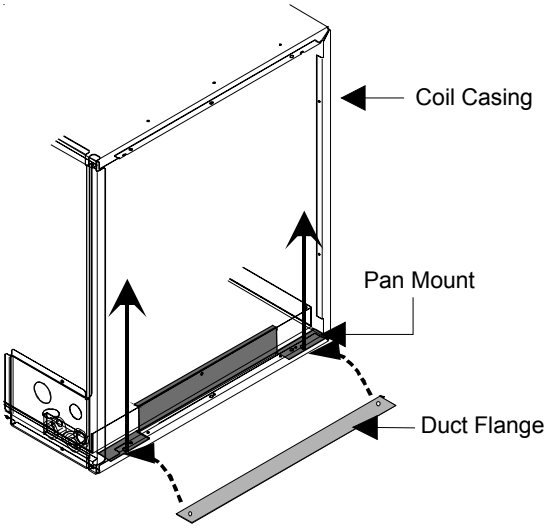

Figure 3

4. Lower pan mount. Secure duct flange and pan mount to the coil casing using the screws removed in step 2.

Blower Section

The cased coil is designed to mate flush with a BBA/BBC blower section on either horizontal right or horizontal left applications.

The coil section must be mounted "upstream" (return air side) of the blower section. Use three adapter plates to connect the coil and blower section together, one on each side and one on the back. **NOTE:** Two adapter plates are shipped with the blower section and one with the coil section. Refer to *Duct Flange Attachment* section to complete installation.

Refrigerant Piping

Job Site Brazing

See companion outdoor condensing unit instructions for recommendations on field piping of interconnecting refrigerant lines.

Line sizes for runs of fifty feet or less should be based on the line diameters of the outdoor unit. For lengths greater than 50 feet, refer to the product service manual. A field provided adapter may be necessary depending on line size used and connection size.

Refrigerant Charge

The coil is shipped without refrigerant. The coil has a holding charge of dry nitrogen to keep it dry and to keep foreign substances from contaminating the assembly. See instructions provided with outdoor unit for refrigerant charging information.

A distributor flow control assembly is shipped with this coil; however, certain conditions may require that the orifice in the assembly be replaced. The outdoor unit will determine if the orifice will need to be replaced with a properly sized one in order to run efficiently. Amana outdoor units are shipped with the properly sized orifices. Restrictor orifices are also available in accessory kits.

To keep your Amana unit warranty in effect, the Amana unit MUST be matched up with the appropriate TXV kit if required. Refer to the outdoor unit Specification Sheet for the correct TXV kit needed to properly run the unit efficiently.

⚠ CAUTION

Excessive torque can cause orifices to stick. Use the proper torque settings when tightening orifices.

Restrictor Orifice

Removal

1. Disassemble the distributor flow control assembly by holding distributor body with a wrench and turning the brass hex nut.
2. Remove and discard the factory-installed restrictor.

   NOTE: If the restrictor does not drop out of the distributor body when disassembled, remove by using an orifice extractor.
3. Remove existing teflon washer if present and discard.

Replacement

1. When required, install new teflon seal as shown in Figure 3.
2. Insert new restrictor fully into the distributor body with smaller end towards the indoor coil as shown in Figure 3. Ensure the restrictor stays inserted in body before connecting mating half.
3. Thread assembly halves together by hand to insure proper mating of threads. Hand tighten until snug.
4. Tighten assembly to 10-12 ft/lbs of torque. Use a suitable torque wrench with properly sized open end wrench adapter. Use a backup wrench to prevent twisting of distributor tubes when applying torque. Care must be taken not to misshape the distributor body.

   NOTE: If a torque wrench is not available, mark a line on each part. Then tighten an additional 1/6 turn (or 1 hex flat)

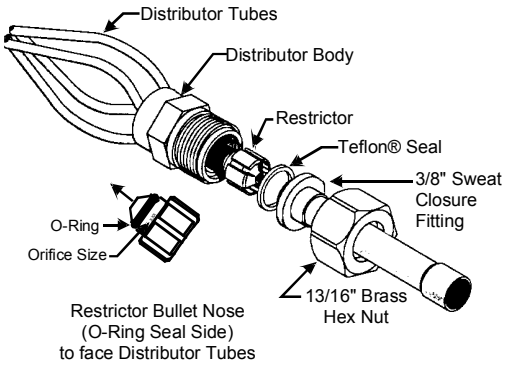

Figure 4

Refrigerant Piping

TXV Kit Installation (CCF Only)

Install this kit on CCF coils to increase system efficiency.

1. Insert the outlet of the TXV (female fitting) into the distributor body. Connect the assembly halves together and tighten by hand. Install the inlet tube onto the inlet of the TXV (male fitting). Hand tighten the joint.
2. Remove the cap from the Schraeder valve on the vapor manifold. Without kinking, attach the TXV equalizer line to the Schraeder valve. Hand tighten the nut onto the Schraeder valve.
3. Tighten the equalizer connection to 10-12 ft/lbs of torque.

⚠ CAUTION

Do not reuse old washers, system leak could occur.

4. Tighten the TXV connections to 15-30 ft/lbs of torque. Use a suitable torque wrench with properly sized open end wrench adapter. Use a backup wrench to prevent twisting of distributor tubes when applying torque.

NOTE: If a torque wrench is not available, mark a line on each part. Then tighten an additional 1/6 turn (or 1 hex flat)**.**

⚠ WARNING

To avoid the risk of fire or explosion, never use oxygen, high pressure air or flammable gases for leak testing a refrigerant system.

Refrigerant Pipe Connections

1. Remove plugs in pipe outlets on coil.
2. Cut field tubing off squarely and cut to correct length, deburr.
3. Inspect tubing ends. Tubing must be round and with- out nicks or dents on tubing surface which is to be brazed to the unit.
4. Insert fully into the swage provided.
5. Braze the tubing.

NOTE: This is a copper to copper joint, use an appropriate brazing alloy (2% minimum silver).

⚠ CAUTION

If the unit has a thermal expansion valve either wrap the expansion valve and sensing bulb with a wet rag, use a thermal block or a similar heat dissipating material to prevent damage to the expansion valve.

6. For proper leak test, evacuation, and charging procedures, see the outdoor unit installation manual. Leak testing is to be done on line set only; therefore, do **NOT** use refrigerant from condensing unit for testing leaks or you may need to evacuate system if a leak is detected.

Drain Connection

The drain connection on the coil requires a full size drain as it exists on the unit. The connection is 3/4" ID FPT. The drain line must contain a trap. If a proper trap is not present, the drain pan could overflow.

NOTE: To avoid double trapping, and possibly an overflowing drain pan, it is not recommended to use soft plastic drain lines.
If used, the auxiliary drain must be piped separately from the main drain connection and must contain a trap located below the bottom of the drain pan.

The auxiliary drain connection is 3/4" ID FPT.

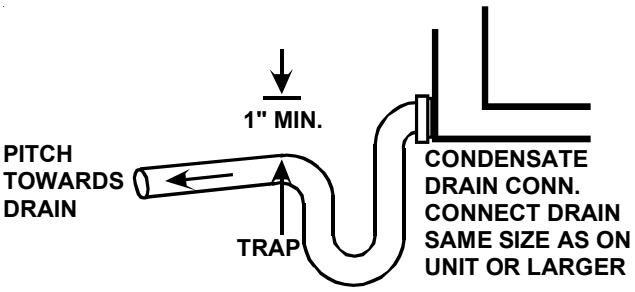

Figure 5

Maintenance

Condensate System Maintenance (Qualified Servicer Only)

As it cools the air, the coil can produce condensation. This water must be drained away properly. At least once a year, a qualified servicer should inspect the drain pan(s) and drain line(s) to confirm that the condensate will drain properly. Cleaning or adjustment may be required at this time.

Air Filters

Air Filter(s) must be supplied by the installer. All of the return air must be filtered before it enters the coil. If this coil is installed without filter(s), poor performance, severe equipment damage, and/or loss of warranty coverage could result. These problems could affect both the indoor unit and the outdoor unit.

As one option, the installer can supply filter grille(s) in the walls and/or ceiling return air duct terminations. If this is done, a filter at the unit will not be required.

If possible, discuss filter location and maintenance with the homeowner before leaving the job.

Filter Maintenance

IMPORTANT: To avoid the risk of poor performance, severe equipment damage, and/or loss of warranty coverage, do not operate the coil without clean filter(s) in place.

Filter(s) should be inspected every month, and cleaned or replaced when necessary. It is the user's responsibility to keep the filters clean. Dirty filters are the most common cause of poor heating or cooling performance.

Your air filter(s) could be located in "filter grilles" in your ceiling or walls, or in the blower coil or furnace. The installer of your coil can tell you where your filter(s) are, and how to clean or replace them. If you cannot reach your installer, call another qualified servicer.

Coil Cleaning

An annual air conditioning checkup including a good coil cleaning, leak check and system pressure check will help keep the system operating at peak efficiency. These coil cleanings should be performed by a qualified servicer.

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